

NOTES:

1. Data from the University of Washington
2. Data are for seismic events of magnitude > 2.5 from 6 January 1970 to 6 October 1993.
3. Larger circles indicate larger magnitude earthquakes.

Magnitude	
•	2.5 - 2.9
○	3.0 - 3.9
○	4.0 - 4.9
○	5.0 - 5.9

Figure 3.1-6  
**Pacific Northwest Seismicity, 1970-1993**

**Figure 3.1-6 (Continued)**

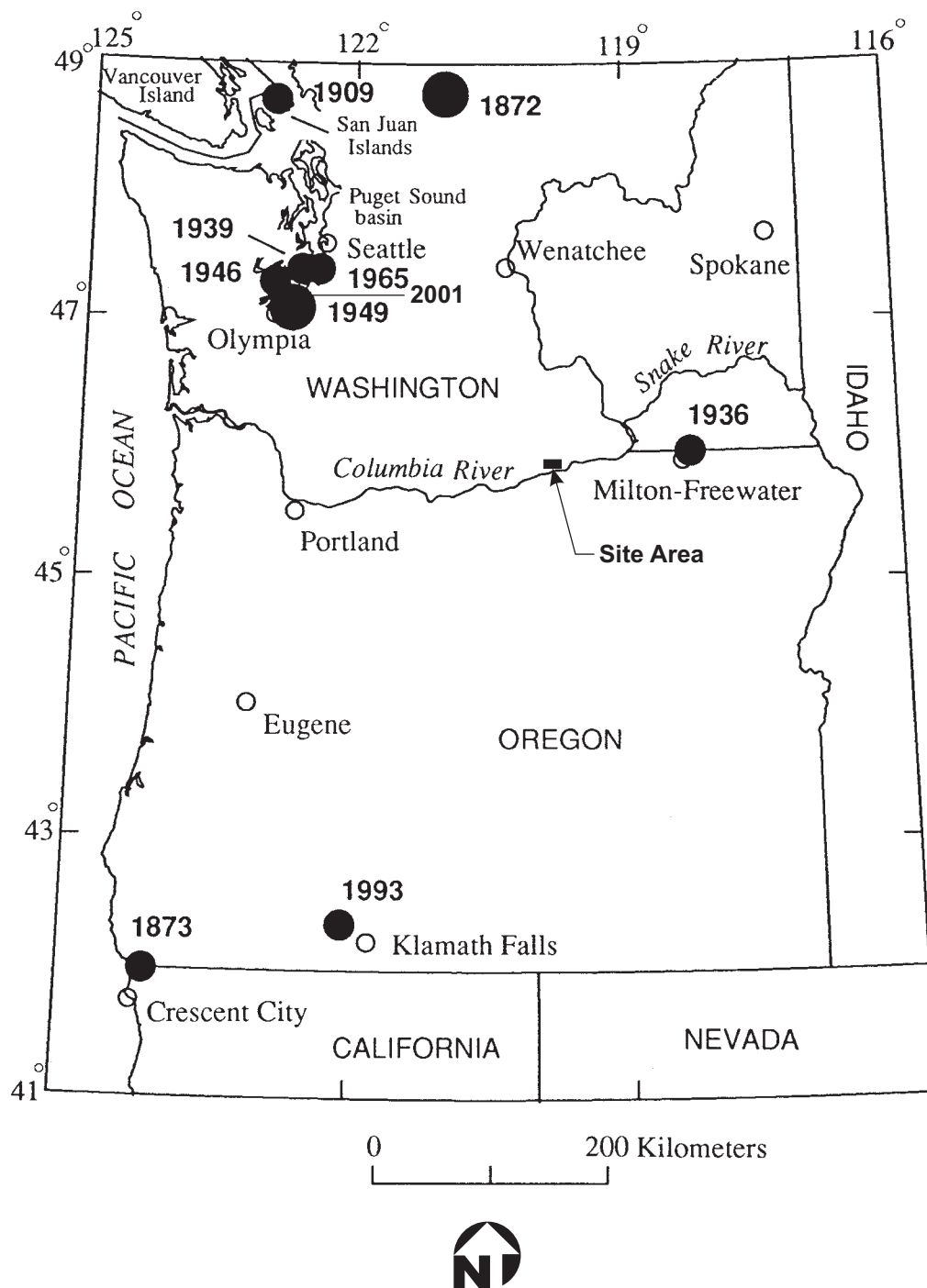


Figure 3.1-7  
**Locations of Major Earthquakes in  
 Oregon and Washington**

**Figure 3.1-7 (Continued)**

The site area is sufficiently distant from the CSZ, the intraplate zone, and Cascade volcanoes that earthquakes on these sources would likely be felt at the plant site, but ground motion would be less than that from large earthquakes on shallow crustal faults (Figure 3.1-1) closer to the site. The closest of these faults is the Arlington-Shutler Buttes and Luna faults approximately 50 miles to the west. The Service anticline is considered to be potentially active and is located about 10 miles to the east (Figure 3.1-1). The site is located in seismic risk zone 2b in the 1997 Uniform Building Code, whereas western Washington is located in higher seismic risk zone 3. According to seismic hazard maps published by the U.S. Geological Survey (1997) and included in the 2000 International Building Code, the site is located in the area of Washington with the lowest probabilistic ground motions used for the seismic design criteria.

### **Volcanic Hazards**

Mount Adams is the closest volcanic source to the plant site and is located approximately 80 miles to the west. As one of the largest volcanoes in the Cascade Range, Mount Adams dominates the volcanic field in Skamania, Yakima, Klickitat, and Lewis Counties and the Yakama Indian Reservation of south-central Washington. Mount Hood is farther away to the southwest. Even though Mount Adams has been less active during the past few thousand years than neighboring Mounts St. Helens, Rainier, and Hood, it is likely to erupt again. Future eruptions will probably occur more frequently from vents on the summit and upper flanks of Mount Adams than from vents scattered in the volcanic fields beyond.

Figure 3.1-8 shows the locations of major Cascade volcanoes and principal eruptive hazard zones for each. Large landslides and debris and mudflows that need not be related to eruptions probably represent the most destructive, far-reaching hazard of Mount Adams. The plant site is sufficiently distant from Mount Adams and drainages susceptible to debris flows that it would not be affected. However, the site is located in an area susceptible to airfall ash deposition in the unlikely event of an eruption during the PGF lifetime. The site is located beyond the principal area of ash deposition shown on Figure 3.1-8, and a U.S. Geological Survey (USGS) report (USGS 1997) indicates that the site area has a 0.02 percent annual probability of 4 inches or more of airfall ash accumulation from Cascade volcanoes.

### **Soil Erosion Hazards**

Based on the U.S. Department of Agriculture (USDA) soil erosion factors for the site area, the potential for erosion is moderate and vegetation has difficulty becoming established within the native soils. Wind erosion is influenced by the climate, vegetative cover, soil texture, soil moisture, length of the unprotected soil surface, topography, and frequency of soil disturbances. March to May is the most critical period for wind erosion in the area, although high winds can be expected year-round within the region.

#### **3.1.1.2 Proposed Action**

The topography, soils, and geology of the plant site and infrastructure corridors are described in the following sections.